ABSTRACT #M462

COMPARISON OF TWO INSTRUMENTS FOR MEASURING FIBER CHARACTERISTICS OF WOOL

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Two instruments were compared for measuring fiber characteristics of wool using the OFDA 100 (BSC Electronics, Ardross, W. Australia) and the OFDA2000. The OFDA 100 is approved in the standard method and used under standard atmospheric conditions (65% RH and 21˚C) to measure average fiber diameter (AFD) and variability (SDFD and CVSD) of scoured wool (2 mm) snippets and can also measure other important wool traits such as comfort factor (CF), average fiber curvature (AFC) and variability (SDFC and CVFC), respectively. The OFDA2000 measures greasy staples and is portable, computerized instrument designed for on-farm use with essentially the same capabilities as the OFDA 100 with the exception of being able to operate under non-atmospheric conditions (i.e., corrections are made electronically for RH and temperature). It measures the same traits as the OFDA 100 plus staple length. A retro-fit add-on also permits the OFDA2000 to measure cleaned snippets mounted on glass slides. Each slide was measured using the OFDA 100 and subsequently measured on the OFDA2000.

Experimental Procedure

Two sets of greasy wool staples were assembled (n1 = 108, AFD = 22.8, range = 18.7-27.6 µm, n2 = 107, AFD = 25.7, range = 19.0-31.0 µm) having been shorn from rapidly growing yearling Rambouillet rams. The greasy staples were first measured using the OFDA2000. The staples were then washed, dried, conditioned, and spread onto a glass slide. Each slide was then measured using the OFDA 100 and subsequently measured on the OFDA2000.

Results

The data were analyzed using the paired T-test, and CORR procedures of SAS. Results for staple and snippet traits in set 1 were different with the exception of CVFC (Table 2). Staple samples from young, rapidly growing, finewool rams are typically coarser at the base than at the tip. Thus the observed differences between the OFDA2000 staple measurements of AFD (21.57 and 23.73 µm for sets 1 and 2, respectively) and the snippet (base of staple) measurements (22.78 and 25.57 µm) are expected. Most traits measured on staples with the OFDA2000 were different than those same traits measured on snippets. The coarser set of samples had significantly different staple and snippet measurements, the two exceptions being AFD measurements with the finer set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example)Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set.

Conclusions

Greasy staple measurements in the OFDA2000 result in useful measurements for selection purposes but caution should be used when comparing measurements with the washed snippet samples of the OFDA 100 and the OFDA2000 particularly when the snippets are cut at the base of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set. For most practical purposes (e.g., selection of sheep based on wool traits) results of the staple (versus mini-coring the whole staple, for example). Though very highly correlated, small differences were present between most snippet measurements made with the two instruments, the two exceptions being AFD measurements with the fine set of samples and CVFC in the current set.